EXHIBIT 11

Seagate ®

Desktop HDD

Data Sheet

The Power of One

- Seagate brings over 30 years of trusted performance and reliability to the new Seagate® Desktop HDDs—now available in capacities up to 4TB.

- Double your capacity and drive down costs with up to 1TB-per-disk hard drive technology.

- SATA 6Gb/s interface optimizes burst performance

- Seagate AcuTrac™ servo technology delivers dependable performance, even with hard drive track widths of only 75 nanometers.

- Seagate OptiCache™ technology boosts overall performance by as much as 45%.

- Free Seagate DiskWizard™ software allows you to install 3TB and 4TB hard drives in Windows, including XP, without UEFI BIOS.

Best-Fit Applications

- Desktop or all-in-one PCs

- Home servers

- PC-based gaming systems

- Desktop RAID

- Direct-attached external storage devices (DAS)

- Network-attached storage devices (NAS)

Desktop HDD

Seagate ®

Specifications	4TB[1]	3TB[1]	2TB[1]	1TB[1]	500GB[1]	320GB[1]	250GB[1]
Model Number	ST4000DM000	ST3000DM001	ST2000DM001	ST1000DM003	ST500DM002[2]	ST320DM000[2]	ST250DM000[2]
Model Name	Desktop HDD	formerly Barracuda®	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda
Interface Options	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ
Performance							
Cache, Multisegmented (MB)	64	64	64	64	16	16	16
SATA Transfer Rates Supported (Gb/s)	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5
Seek Average, Read (ms)	<8.5	<8.5	<8.5	<8.5	<11	<11	<11
Seek Average, Write (ms)	<9.5	<9.5	<9.5	<9.5	<12	<12	<12
Average Data Rate, Read/Write (MB/s)	146	156	156	156	125	125	125
Max Sustained Data Rate, OD Read (MB/s)	180	210	210	210	144	144	144
Configuration/Organization							
Heads/Disks	8/4	6/3	6/3	2/1	2/1	2/1	1/1
Bytes per Sector	4096	4096	4096	4096	4096 or 512[2]	4096 or 512[2]	4096 or 512[2]
Voltage							
Voltage Tolerance, Including Noise (5V)	±5%	±5%	±5%	±5%	±5%	±5%	±5%
Voltage Tolerance, Including Noise (12V)	±10%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%
Reliability/Data Integrity							
Contact Start/Stop Cycles	—	—	—	—	50,000	50,000	50,000
Load/Unload Cycles	300,000	300,000	300,000	300,000	—	—	—
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14
Power-On Hours	2400	2400	2400	2400	2400	2400	2400
Power Management							
Startup Power (A)	2.0	2.5	2.5	2.0	2.0	2.0	2.0
Operating Mode, Typical (W)	7.5	8.0	8.0	5.90	6.19	6.19	6.19
Idle Average (W)	5.0	5.8	5.8	4.0	4.60	4.60	4.60
Standby Mode (W)	0.75	0.75	0.75	0.63	0.79	0.79	0.79
Sleep Mode (W)	0.75	0.75	0.75	0.63	0.79	0.79	0.79
Environmental							
Temperature							
Operating (ambient min °C)	0	0	0	0	0	0	0
Operating (drive case max °C)	60	60	60	60	60	60	60
Nonoperating (ambient °C)	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70
Halogen Free	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS Compliance	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Physical							
Height (mm/in)	26.11/1.028	26.11/1.028	26.11/1.028	20.17/0.7825	19.98/0.787	19.98/0.787	19.98/0.787
Width (mm/in)	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0
Depth (mm/in)	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787
Weight (g/lb)	610/1.345	626/1.38	626/1.38	400/0.88	415/0.92	415/0.92	415/0.92
Carton Unit Quantity	20	20	20	25	25	25	25
Cartons per Pallet	40	40	40	40	40	40	40
Cartons per Layer	8	8	8	8	8	8	8
Special Features							
Seagate OptiCache™ Technology	Yes	Yes	Yes	Yes	No	No	No
Seagate AcuTrac™ Technology	Yes	Yes	Yes	Yes	No	No	No

1 One gigabyte, or GB, equals one billion bytes and one terabyte, or TB, equals one trillion bytes when referring to drive capacity.
2 Seagate ships this drive in both 4K- and 512-byte sectors. SmartAlign technology is included on 4K sector drives. Both drives are functionally and physically equivalent.

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EXHIBIT 12

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Desktop HDD
Desktop HDD Data Sheet (444 KB) 📄

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Specifications

RESOURCES

📄 Desktop HDD Kit Data Sheet (449 KB)

📄 Desktop HDD Data Sheet (444 KB)

📄 Barracuda 7200.12 Data Sheet (588 KB)

📄 Desktop HDD Product Manual (248 KB)

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Generation	Desktop HDD.15	7200.14								
Capacity	4TB	3TB	2TB	1.5TB	1TB	500GB	320GB	250GB	1TB	750G
Form Factor	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"
Interface Options	SATA 6Gb/s	SATA 6Gb/s	SATA 3Gb/s, SATA 6Gb/s	SATA 3Gb/s	SATA 6Gb/s, SATA 3Gb/s	SATA 3Gb/s, SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA

Performance										
Spindle Speed (RPM)									7200	7200
Cache (MB)	64	64	64	32	64, 32	16	16	16	32	32
Transfer Rate, Max Ext (MB/s)	600	600	600		600	600	600	600	600	600
Sustained Data Rate OD	180	210MB/s	210MB/s		210MB/s	125MB/s	125MB/s	125MB/s	125MB/s	128ME
Average Latency (ms)	5.10	4.16	4.16		4.16	4.16	4.16	4.16	4.17	4.17
Power Management										
Idle, Typical Operating (W)	5.0	5.80	5.80		4.0, 4.5	4.60	4.60	4.60	<5.0	<5.0
Environmental										
Temperature										
Operating	0° to 60°C	0° to 60°C	0° to 60°C		0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 6
Non-operating	-40° to 70°C	-40° to 70°C	-40° to 70°C		-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to
Shock										
Operating: Gs (ms)	80 (10ms)	80 (2ms)	80 (2ms)		80 (2ms)	70 (2ms)	70 (2ms)	70 (2ms)	70 (2ms)	70 (2m
Non-operating: Gs (ms)	300 (2ms)	300 (2ms)	300 (2ms)		300 (2ms)	350 (2ms)	350 (2ms)	350 (2ms)	300 (1ms)	300 (1
Acoustics (bels - sound power)										
Idle	2.3	2.4	2.4		2.4	2.6	2.6	2.6	2.5	2.5
Operating	2.8	2.6	2.6		2.6	2.8	2.8	2.8	2.7	2.7
Physical										
Height (in/mm)	1.028/26.11	1.028/26.1	1.028/26.1		0.7825/20.17	0.787/19.98	0.787/19.98	0.787/19.98	1.02/26.1	1.02/2
Width (in/mm)	4.0/101.6	4.0/101.6	4.0/101.6		4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.000/101.6	4.000/
Length (in/mm)	5.787/146.99,	5.75/146.05,	5.75/146.05,		5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/

	5.75/146.05	5.787/146.99	5.787/146.99							
Height (in/mm) (maximum)				1.028/26.1	1.028/26.1	1.028/26.1				
Width (in/mm) (maximum)				4.010/101.85	4.010/101.85	4.010/101.85				
Length (in/mm) (maximum)				5.787/146.99	5.787/146.99	5.787/146.99				
Weight (lb/g)	1.345/610, 0.90/408	0.90/408, 1.38/626	0.90/408, 1.371/622		0.915/415	0.915/415	0.915/415	0.915/415	1.40/640	1.40/6

Model Number	Generation	Package	Capacity	Interface	Cache (MB)	Areal Density	Length	Width	Height	Typical Weight	Operating Temperature	Average Operating Power
STBD4000400	Desktop HDD.15	Kit	4TB	SATA 6Gb/s	64MB		146.05mm	101.6mm	26.1mm	408g		
ST4000DM000	Desktop HDD.15	Drive Only	4TB	SATA 6Gb/s	64MB	625	146.99mm	101.6mm	26.11mm	610g	60°C	7.50W
STBD3000100	7200.14	Kit	3TB	SATA 6Gb/s	64MB		146.05mm	101.6mm	26.1mm	408g	60°C	8.0W
STBD2000101	7200.14	Kit	2TB	SATA 3Gb/s	64MB		146.05mm	101.6mm	26.1mm	408g		
ST315005N4A1AS-RK	7200.14	Kit	1.5TB	SATA 3Gb/s	32MB							
ST310005N1A1AS-RK	7200.14	Kit	1TB	SATA 3Gb/s	32MB							
ST3500641AS-RK	7200.14	Kit	500GB	SATA 3Gb/s	16MB							
ST3000DM001	7200.14	Drive Only	3TB	SATA 6Gb/s	64MB	625	146.99mm	101.6mm	26.1mm	626g	60°C	8.0W
ST2000DM001	7200.14	Drive Only	2TB	SATA	64MB	625	146.99mm	101.6mm	26.1mm	622g	60°C	8.0W

						Gfc/in^2						
ST1000DM003	7200.14	Drive Only	1TB	SATA 6Gb/s	64MB	625 Gfc/in^2	146.99mm	101.6mm	20.17mm	415g	60°C	6.19W
ST500DM002	7200.14	Drive Only	500GB	SATA 6Gb/s	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	60°C	6.19W
ST320DM000	7200.14	Drive Only	320GB	SATA 6Gb/s	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	60°C	6.19W
ST250DM000	7200.14	Drive Only	250GB	SATA 6Gb/s	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	60°C	6.19W
ST31000524AS	7200.12	Drive Only	1TB	SATA 6Gb/s	32MB	329	146.99mm	101.6mm	26.1mm	640g	60°C	<9.4W
ST3750525AS	7200.12	Drive Only	750GB	SATA 6Gb/s	32MB	329	146.99mm	101.6mm	26.1mm	640g	60°C	<9.4W
ST3500413AS	7200.12	Drive Only	500GB	SATA 6Gb/s	16MB	329	146.99mm	101.6mm	20.00mm	540g	60°C	<8.0W
ST3320413AS	7200.12	Drive Only	320GB	SATA 6Gb/s	16MB	329	146.99mm	101.6mm	20.00mm	540g	60°C	<8.0W
ST3250312AS	7200.12	Drive Only	250GB	SATA 6Gb/s	8MB	329	146.99mm	101.6mm	20.00mm	540g	60°C	<8.0W
ST3160316AS	7200.12	Drive Only	160GB	SATA 6Gb/s	8MB	329	146.99mm	101.6mm	20.00mm	540g	60°C	<8.0W

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📄 Desktop HDD Kit Data Sheet (449 KB)

📄 Desktop HDD Data Sheet (444 KB)

📄 Barracuda 7200.12 Data Sheet (588 KB)

📄 Desktop HDD Product Manual (248 KB)

Generation	Desktop HDD.15	7200.14								
Capacity	4TB	3TB	2TB	1.5TB	1TB	500GB	320GB	250GB	1TB	750G

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| Form Factor | 3.5" | 3.5" | 3.5" | 3.5" | 3.5" | 3.5" | 3.5" | 3.5" | 3.5" | 3.5" |
| Interface | SATA 6Gb/s | SATA 6Gb/s | SATA 3Gb/s, | SATA 3Gb/s | SATA 6Gb/s, | SATA 3Gb/s, | SATA 6Gb/s | SATA 6Gb/s | SATA 6Gb/s | SATA |

Options			SATA 6Gb/s		SATA 3Gb/s	SATA 6Gb/s				
Performance										
Spindle Speed (RPM)									7200	7200
Cache (MB)	64	64	64	32	64, 32	16	16	16	32	32
Transfer Rate, Max Ext (MB/s)	600	600	600		600	600	600	600	600	600
Sustained Data Rate OD	180	210MB/s	210MB/s		210MB/s	125MB/s	125MB/s	125MB/s	125MB/s	128ME
Average Latency (ms)	5.10	4.16	4.16		4.16	4.16	4.16	4.16	4.17	4.17
Power Management										
Idle, Typical Operating (W)	5.0	5.80	5.80		4.0, 4.5	4.60	4.60	4.60	<5.0	<5.0
Environmental										
Temperature										
Operating	0° to 60°C	0° to 60°C	0° to 60°C		0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 6
Non-operating	-40° to 70°C	-40° to 70°C	-40° to 70°C		-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to
Shock										
Operating: Gs (ms)	80 (10ms)	80 (2ms)	80 (2ms)		80 (2ms)	70 (2ms)	70 (2ms)	70 (2ms)	70 (2ms)	70 (2m
Non-operating: Gs (ms)	300 (2ms)	300 (2ms)	300 (2ms)		300 (2ms)	350 (2ms)	350 (2ms)	350 (2ms)	300 (1ms)	300 (1
Acoustics (bels - sound power)										
Idle	2.3	2.4	2.4		2.4	2.6	2.6	2.6	2.5	2.5
Operating	2.8	2.6	2.6		2.6	2.8	2.8	2.8	2.7	2.7
Physical										
Height (in/mm)	1.028/26.11	1.028/26.1	1.028/26.1		0.7825/20.17	0.787/19.98	0.787/19.98	0.787/19.98	1.02/26.1	1.02/2(
Width (in/mm)	4.0/101.6	4.0/101.6	4.0/101.6		4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.000/101.6	4.000/

Length (in/mm)	5.787/146.99, 5.75/146.05	5.75/146.05, 5.787/146.99	5.75/146.05, 5.787/146.99		5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/
Height (in/mm) (maximum)				1.028/26.1	1.028/26.1	1.028/26.1				
Width (in/mm) (maximum)				4.010/101.85	4.010/101.85	4.010/101.85				
Length (in/mm) (maximum)				5.787/146.99	5.787/146.99	5.787/146.99				
Weight (lb/g)	1.345/610, 0.90/408	0.90/408, 1.38/626	0.90/408, 1.371/622		0.915/415	0.915/415	0.915/415	0.915/415	1.40/640	1.40/6

Model Number	Generation	Package	Capacity	Interface	Cache (MB)	Areal Density	Length	Width	Height	Typical Weight	Operating Temperature	Average Operating Power
STBD4000400	Desktop HDD.15	Kit	4TB	SATA 6Gb/s	64MB		146.05mm	101.6mm	26.1mm	408g		
ST4000DM000	Desktop HDD.15	Drive Only	4TB	SATA 6Gb/s	64MB	625	146.99mm	101.6mm	26.11mm	610g	60°C	7.50W
STBD3000100	7200.14	Kit	3TB	SATA 6Gb/s	64MB		146.05mm	101.6mm	26.1mm	408g	60°C	8.0W
STBD2000101	7200.14	Kit	2TB	SATA 3Gb/s	64MB		146.05mm	101.6mm	26.1mm	408g		
ST315005N4A1AS-RK	7200.14	Kit	1.5TB	SATA 3Gb/s	32MB							
ST310005N1A1AS-RK	7200.14	Kit	1TB	SATA 3Gb/s	32MB							
ST3500641AS-RK	7200.14	Kit	500GB	SATA 3Gb/s	16MB							
ST3000DM001	7200.14	Drive Only	3TB	SATA 6Gb/s	64MB	625	146.99mm	101.6mm	26.1mm	626g	60°C	8.0W

Model	Generation	Type	Capacity	Interface	Cache	Density	Length	Width	Height	Weight	Temp	Power
ST2000DM001	7200.14	Drive Only	2TB	SATA 6Gb/s	64MB	625 Gfc/in^2	146.99mm	101.6mm	26.1mm	622g	60°C	8.0W
ST1000DM003	7200.14	Drive Only	1TB	SATA 6Gb/s	64MB	625 Gfc/in^2	146.99mm	101.6mm	20.17mm	415g	60°C	6.19W
ST500DM002	7200.14	Drive Only	500GB	SATA 6Gb/s	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	60°C	6.19W
ST320DM000	7200.14	Drive Only	320GB	SATA 6Gb/s	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	60°C	6.19W
ST250DM000	7200.14	Drive Only	250GB	SATA 6Gb/s	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	60°C	6.19W
ST31000524AS	7200.12	Drive Only	1TB	SATA 6Gb/s	32MB	329	146.99mm	101.6mm	26.1mm	640g	60°C	<9.4W
ST3750525AS	7200.12	Drive Only	750GB	SATA 6Gb/s	32MB	329	146.99mm	101.6mm	26.1mm	640g	60°C	<9.4W
ST3500413AS	7200.12	Drive Only	500GB	SATA 6Gb/s	16MB	329	146.99mm	101.6mm	20.00mm	540g	60°C	<8.0W
ST3320413AS	7200.12	Drive Only	320GB	SATA 6Gb/s	16MB	329	146.99mm	101.6mm	20.00mm	540g	60°C	<8.0W
ST3250312AS	7200.12	Drive Only	250GB	SATA 6Gb/s	8MB	329	146.99mm	101.6mm	20.00mm	540g	60°C	<8.0W
ST3160316AS	7200.12	Drive Only	160GB	SATA 6Gb/s	8MB	329	146.99mm	101.6mm	20.00mm	540g	60°C	<8.0W

EXHIBIT 14

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	Desktop HDD 4TB ST4000DM000 📄 Data Sheet 📄 Product Manual	STBD4000400 Desktop HDD 4TB Kit STBD4000400 📄 Data Sheet	Barracuda Desktop 6-Gb/s 3TB Hard Drive ST3000DM001 📄 Data Sheet 📄 Product Manual	Barracuda®3.5 Inch Retail Kit SATA 3TB STBD3000100 📄 Data Sheet	Barracuda® 3. SATA 2TB STBD2000101 📄 Data Sheet
Generation	Desktop HDD.15	Desktop HDD.15	7200.14	7200.14	7200.14
Package	Drive Only	Kit	Drive Only	Kit	Kit
Capacity	4TB	4TB	3TB	3TB	2TB
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 3Gb/s
Cache	64MB	64MB	64MB	64MB	64MB
Areal Density	625		625		
Length	146.99mm	146.05mm	146.99mm	146.05mm	146.05mm
Width	101.6mm	101.6mm	101.6mm	101.6mm	101.6mm
Height	26.11mm	26.1mm	26.1mm	26.1mm	26.1mm
Typical Weight	610g	408g	626g	408g	408g
Operating Temperature	60°C		60°C	60°C	
Average Operating Power	7.50W		8.0W	8.0W	

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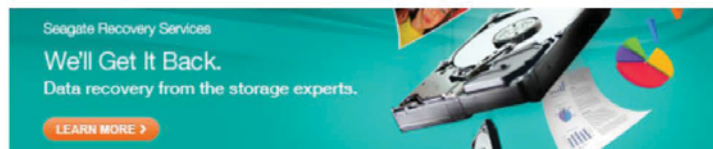| External Drives	Internal Drives	Solutions	Services & Software	Support	Partners

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Desktop Hard Drives

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Seagate Recovery Services
We'll Get It Back.
Data recovery from the storage experts.
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📄 Laptop, Desktop and Video Storage Drive Guide - April 2013 (150KB)

PRODUCT NAME	PERFECT FOR	CAPACITY/ SPINDLE SPEED (RPM)/ CACHE (MB)	
Desktop HDD LEARN MORE › 📄 Desktop HDD Data Sheet (444KB)	◦ HDDs that bring your costs down and crank your storage up ◦ No-hassle transition to 3TB and 4TB drives ◦ Seagate AcuTrac™ technology maximizes HDD storage densities	$160_{GB} — 4_{TB}$ $5900_{RPM}, 7200_{RPM}$ $8_{MB}, 16_{MB}, 32_{MB},$ 64_{MB} Compare Seagate Desktop HDD Models	
Desktop SSHD LEARN MORE ›	◦ Solid state speed for fast, responsive system performance ◦ Up to 2 Terabytes of massive storage capacity ◦ Innovative use of solid state memory delivers affordable performance and capacity	$1 — 4_{TB}$ 64_{MB} Compare Seagate Desktop SSHD Models	

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Desktop Hard Drives

Seagate® desktop hard drives deliver optimal performance for every desktop computing need—from entry-level workstations to high-performance gaming systems. These desktop drives offer innovative technologies, super-sized capacities, low power consumption and blazing fast performance.

📄 Laptop, Desktop and Video Storage Drive Guide - April 2013 (150KB)

PRODUCT NAME	PERFECT FOR	CAPACITY/ SPINDLE SPEED (RPM)/ CACHE (MB)
Desktop SSHD LEARN MORE ›	◦ Solid state speed for fast, responsive system performance ◦ Up to 4 Terabytes of massive storage capacity ◦ Innovative use of solid state memory delivers affordable performance and capacity	**1 — 4**TB **64**MB Compare Seagate Desktop SSHD Models
Desktop HDD LEARN MORE › 📄 Desktop HDD Data Sheet (444KB)	◦ HDDs that bring your costs down and crank your storage up ◦ No-hassle transition to 3TB and 4TB drives ◦ Seagate AcuTrac™ technology maximizes HDD storage densities	**160**GB **— 4**TB **5900**RPM, **7200**RPM **8**MB, **16**MB, **32**MB, **64**MB Compare Seagate Desktop HDD Models

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Desktop Hard Drives

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Seagate Recovery Services
We'll Get It Back.
Data recovery from the storage experts.
LEARN MORE ›

📄 **Laptop, Desktop and Video Storage Drive Guide - April 2013 (150KB)**

PRODUCT NAME   **PERFECT FOR**   **CAPACITY/ SPINDLE SPEED (RPM)/ CACHE (MB)**

Desktop SSHD

LEARN MORE ›

- Solid state speed for fast, responsive system performance
- Up to 4 Terabytes of massive storage capacity
- Innovative use of solid state memory delivers affordable performance and capacity

1 — 4TB
64MB

Compare Seagate Desktop SSHD Models

Desktop HDD

LEARN MORE ›

📄 **Desktop HDD Data Sheet (444KB)**

- HDDs that bring your costs down and crank your storage up
- No-hassle transition to 3TB and 4TB drives
- Seagate AcuTrac™ technology maximizes HDD storage densities

160GB — **6**TB
5900RPM, **7200**RPM
8MB, **16**MB, **32**MB,
64MB, **128**MB

Compare Seagate Desktop HDD Models

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Desktop Hard Drives

Seagate® desktop hard drives deliver optimal performance for every desktop computing need—from entry-level workstations to high-performance gaming systems. These desktop drives offer innovative technologies, super-sized capacities, low power consumption and blazing fast performance.

📄 **Laptop, Desktop and Video Storage Drive Guide - April 2013 (150KB)**

PRODUCT NAME	PERFECT FOR	CAPACITY/ SPINDLE SPEED (RPM)/ CACHE (MB)	
Desktop SSHD [LEARN MORE ›]	◦ Solid state speed for fast, responsive system performance ◦ Up to 4 Terabytes of massive storage capacity ◦ Innovative use of solid state memory delivers affordable performance and capacity	**1 — 4**TB **64**MB **Compare Seagate Desktop SSHD Models**	
Desktop HDD [LEARN MORE ›] 📄 **Desktop HDD Data Sheet (444KB)**	◦ HDDs that bring your costs down and crank your storage up ◦ No-hassle transition to 3TB and 4TB drives ◦ Seagate AcuTrac™ technology maximizes HDD storage densities	**160**GB — **4**TB **5900**RPM, **7200**RPM **8**MB, **16**MB, **32**MB, **64**MB **Compare Seagate Desktop HDD Models**	

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Internal Desktop Drives

Seagate® 3.5-inch desktop internal
drives are optimized for PC desktop
computers and offer super-sized
capacities, low power consumption
and blazing fast performance at
affordable price points.

Seagate Desktop SSHD   **Seagate Desktop HDD**   **Seagate NAS HDD**

1TB – 4TB   160GB – 5TB   2TB – 4TB

Hybrid drive delivering speed   High capacity hard disk drive for   Designed for home network
and capacity for gaming and   desktop applications at an   storage, business NAS, server
high-performance desktop   affordable price.   and RAID arrays.
applications.

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Internal Desktop Drives

Seagate® 3.5-inch desktop internal drives are optimized for PC desktop computers and offer super-sized capacities, low power consumption and blazing fast performance at affordable price points.

Seagate Desktop SSHD

1TB – 4TB

Hybrid drive delivering speed and capacity for gaming and high-performance desktop applications.

Buy Now

Seagate Desktop HDD

160GB – 5TB

High capacity hard disk drive for desktop applications at an affordable price.

Buy Now

Seagate NAS HDD

2TB – 4TB

Designed for home network storage, business NAS, server and RAID arrays.

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Internal Desktop Drives

Seagate® 3.5-inch desktop internal drives are optimized for PC desktop computers and offer super-sized capacities, low power consumption and blazing fast performance at affordable price points.

Seagate Desktop SSHD

1TB – 4TB

Hybrid drive delivering speed and capacity for gaming and high-performance desktop applications.

Buy Now

Seagate Desktop HDD

160GB – 4TB

High capacity hard disk drive for desktop applications at an affordable price.

Buy Now

Seagate NAS HDD

2TB – 4TB

Designed for home network storage, business NAS, server and RAID arrays.

Buy Now

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Internal Desktop Drives

Seagate® 3.5-inch desktop internal drives are optimized for PC desktop computers and offer super-sized capacities, low power consumption and blazing fast performance at affordable price points.

Seagate Desktop SSHD

1TB – 4TB

Hybrid drive delivering speed and capacity for gaming and high-performance desktop applications.

BUY NOW

Seagate Desktop HDD

160GB – 4TB

High capacity hard disk drive for desktop applications at an affordable price.

BUY NOW

Seagate NAS HDD

2TB – 4TB

Designed for home network storage, business NAS, server and RAID arrays.

BUY NOW

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	Desktop HDD 4TB ST4000DM000	Desktop HDD 4TB Kit STBD4000400	Barracuda Desktop 6-Gb/s 3TB Hard Drive ST3000DM001	BarracudaⒸ Kit SATA 3̲ STBD3000100
		In stock $179.99		In stock
		Add to Cart		A̲
	📄 DATA SHEET 📄 PRODUCT MANUAL	📄 DATA SHEET	📄 DATA SHEET 📄 PRODUCT MANUAL	📄 DATA SHEE̲
Generation	Desktop HDD.15	Desktop HDD.15	7200.14	7200.14
Generation	Desktop HDD.15	Desktop HDD.15	7200.14	7200.14
Package	Drive Only	Kit	Drive Only	Kit
Capacity	4TB	4TB	3TB	3TB
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Cache	64MB	64MB	64MB	64MB
Areal Density	625		625	
Length	146.99mm	146.05mm	146.99mm	146.05mm
Width	101.6mm	101.6mm	101.6mm	101.6mm
Height	26.11mm	26.1mm	26.1mm	26.1mm
Typical Weight	610g	408g	626g	408g
Operating Temperature	60°C		60°C	60°C
Average Operating Power	7.50W		8.0W	8.0W

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	Desktop HDD 5TB Hard Drive ST5000DM000	Desktop HDD 4TB Hard Drive ST4000DM000	Desktop HDD 4TB Drive Kit STBD4000400	Barracuda Desktop 6-Gb/s 3TB Hard Drive ST3000DM001	Barracuda®3 Kit SATA 3T STBD3000100
	📄 DATA SHEET 📄 PRODUCT MANUAL	📄 DATA SHEET 📄 PRODUCT MANUAL	📄 DATA SHEET	📄 DATA SHEET 📄 PRODUCT MANUAL	📄 DATA SHEET
Generation	Desktop HDD.15	Desktop HDD.15	Desktop HDD.15	7200.14	7200.14
Package	Drive Only	Drive Only	Kit	Drive Only	Kit
Capacity	5TB	4TB	4TB	3TB	3TB
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Cache	128MB	64MB	64MB	64MB	64MB
Areal Density	826	625		625	
Length	146.99mm	146.99mm	146.05mm	146.99mm	146.05mm
Width	101.60mm	101.6mm	101.6mm	101.6mm	101.6mm
Height	26.10mm	26.11mm	26.1mm	26.1mm	26.1mm
Typical Weight	655g	610g	408g	626g	408g
Operating Temperature	60°C	60°C		60°C	60°C
Average Operating Power	7.50W	5.60W		8.0W	8.0W

EXHIBIT 18

Seagate ®

Desktop HDD

Data Sheet

The Power of One

- Seagate brings over 30 years of trusted performance and reliability to the new Seagate® Desktop HDDs—now available in capacities up to 4TB.

- Double your capacity and drive down costs with up to 1TB-per-disk hard drive technology.

- SATA 6Gb/s interface optimizes burst performance

- Seagate AcuTrac™ servo technology delivers dependable performance, even with hard drive track widths of only 75 nanometers.

- Seagate OptiCache™ technology boosts overall performance by as much as 45%.

- Free Seagate DiskWizard™ software allows you to install 3TB and 4TB hard drives in Windows, including XP, without UEFI BIOS.

Best-Fit Applications

- Desktop or all-in-one PCs

- Home servers

- PC-based gaming systems

- Desktop RAID

- Direct-attached external storage devices (DAS)

- Network-attached storage devices (NAS)

Desktop HDD

Seagate ®

Specifications	4TB[1]	3TB[1]	2TB[1]	1TB[1]	500GB[1]	320GB[1]	250GB[1]
Model Number	ST4000DM000	ST3000DM001	ST2000DM001	ST1000DM003	ST500DM002[2]	ST320DM000[2]	ST250DM000[2]
Model Name	Desktop HDD	formerly Barracuda®	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda
Interface Options	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ
Performance							
Cache, Multisegmented (MB)	64	64	64	64	16	16	16
SATA Transfer Rates Supported (Gb/s)	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5
Seek Average, Read (ms)	<8.5	<8.5	<8.5	<8.5	<11	<11	<11
Seek Average, Write (ms)	<9.5	<9.5	<9.5	<9.5	<12	<12	<12
Average Data Rate, Read/Write (MB/s)	146	156	156	156	125	125	125
Max Sustained Data Rate, OD Read (MB/s)	180	210	210	210	144	144	144
Configuration/Organization							
Heads/Disks	8/4	6/3	6/3	2/1	2/1	2/1	1/1
Bytes per Sector	4096	4096	4096	4096	4096 or 512[2]	4096 or 512[2]	4096 or 512[2]
Voltage							
Voltage Tolerance, Including Noise (5V)	±5%	±5%	±5%	±5%	±5%	±5%	±5%
Voltage Tolerance, Including Noise (12V)	±10%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%
Reliability/Data Integrity							
Contact Start/Stop Cycles	—	—	—	—	50,000	50,000	50,000
Load/Unload Cycles	300,000	300,000	300,000	300,000	—	—	—
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14
Power-On Hours	2400	2400	2400	2400	2400	2400	2400
Power Management							
Startup Power (A)	2.0	2.5	2.5	2.0	2.0	2.0	2.0
Operating Mode, Typical (W)	7.5	8.0	8.0	5.90	6.19	6.19	6.19
Idle Average (W)	5.0	5.8	5.8	4.0	4.60	4.60	4.60
Standby Mode (W)	0.75	0.75	0.75	0.63	0.79	0.79	0.79
Sleep Mode (W)	0.75	0.75	0.75	0.63	0.79	0.79	0.79
Environmental							
Temperature							
Operating (ambient min °C)	0	0	0	0	0	0	0
Operating (drive case max °C)	60	60	60	60	60	60	60
Nonoperating (ambient °C)	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70
Halogen Free	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS Compliance	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Physical							
Height (mm/in)	26.11/1.028	26.11/1.028	26.11/1.028	20.17/0.7825	19.98/0.787	19.98/0.787	19.98/0.787
Width (mm/in)	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0
Depth (mm/in)	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787
Weight (g/lb)	610/1.345	626/1.38	626/1.38	400/0.88	415/0.92	415/0.92	415/0.92
Carton Unit Quantity	20	20	20	25	25	25	25
Cartons per Pallet	40	40	40	40	40	40	40
Cartons per Layer	8	8	8	8	8	8	8
Special Features							
Seagate OptiCache™ Technology	Yes	Yes	Yes	Yes	No	No	No
Seagate AcuTrac™ Technology	Yes	Yes	Yes	Yes	No	No	No

1 One gigabyte, or GB, equals one billion bytes and one terabyte, or TB, equals one trillion bytes when referring to drive capacity.
2 Seagate ships this drive in both 4K- and 512-byte sectors. SmartAlign technology is included on 4K sector drives. Both drives are functionally and physically equivalent.

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EXHIBIT 19

Desktop HDD

Data Sheet

The Power of One

- Seagate brings over 30 years of trusted performance and reliability to the new Seagate® Desktop HDDs—now available in capacities up to 4TB.

- Double your capacity and drive down costs with up to 1TB-per-disk hard drive technology.

- SATA 6Gb/s interface optimizes burst performance

- Seagate AcuTrac™ servo technology delivers dependable performance, even with hard drive track widths of only 75 nanometers.

- Seagate OptiCache™ technology boosts overall performance by as much as 45%.

- Free Seagate DiskWizard™ software allows you to install 3TB and 4TB hard drives in Windows, including XP, without UEFI BIOS.

Best-Fit Applications

- Desktop or all-in-one PCs

- Home servers

- PC-based gaming systems

- Desktop RAID

- Direct-attached external storage devices (DAS)

- Network-attached storage devices (NAS)

Desktop HDD

Seagate ®

Specifications	4TB[1]	3TB[1]	2TB[1]	1TB[1]	500GB[1]	320GB[1]	250GB[1]
Model Number	ST4000DM000	ST3000DM001	ST2000DM001	ST1000DM003	ST500DM002[2]	ST320DM000[2]	ST250DM000[2]
Model Name	Desktop HDD	formerly Barracuda®	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda
Interface Options	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ
Performance							
Cache, Multisegmented (MB)	64	64	64	64	16	16	16
SATA Transfer Rates Supported (Gb/s)	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5
Seek Average, Read (ms)	<8.5	<8.5	<8.5	<8.5	<11	<11	<11
Seek Average, Write (ms)	<9.5	<9.5	<9.5	<9.5	<12	<12	<12
Average Data Rate, Read/Write (MB/s)	146	156	156	156	125	125	125
Max Sustained Data Rate, OD Read (MB/s)	180	210	210	210	144	144	144
Configuration/Organization							
Heads/Disks	8/4	6/3	6/3	2/1	2/1	2/1	1/1
Bytes per Sector	4096	4096	4096	4096	4096 or 512[2]	4096 or 512[2]	4096 or 512[2]
Voltage							
Voltage Tolerance, Including Noise (5V)	±5%	±5%	±5%	±5%	±5%	±5%	±5%
Voltage Tolerance, Including Noise (12V)	±10%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%
Reliability/Data Integrity							
Contact Start/Stop Cycles	—	—	—	—	50,000	50,000	50,000
Load/Unload Cycles	300,000	300,000	300,000	300,000	—	—	—
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14
Power-On Hours	2400	2400	2400	2400	2400	2400	2400
Power Management							
Startup Power (A)	2.0	2.5	2.5	2.0	2.0	2.0	2.0
Operating Mode, Typical (W)	7.5	8.0	8.0	5.90	6.19	6.19	6.19
Idle Average (W)	5.0	5.8	5.8	4.0	4.60	4.60	4.60
Standby Mode (W)	0.75	0.75	0.75	0.63	0.79	0.79	0.79
Sleep Mode (W)	0.75	0.75	0.75	0.63	0.79	0.79	0.79
Environmental							
Temperature							
Operating (ambient min °C)	0	0	0	0	0	0	0
Operating (drive case max °C)	60	60	60	60	60	60	60
Nonoperating (ambient °C)	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70
Halogen Free	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS Compliance	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Physical							
Height (mm/in)	26.11/1.028	26.11/1.028	26.11/1.028	20.17/0.7825	19.98/0.787	19.98/0.787	19.98/0.787
Width (mm/in)	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0
Depth (mm/in)	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787
Weight (g/lb)	610/1.345	626/1.38	626/1.38	400/0.88	415/0.92	415/0.92	415/0.92
Carton Unit Quantity	20	20	20	25	25	25	25
Cartons per Pallet	40	40	40	40	40	40	40
Cartons per Layer	8	8	8	8	8	8	8
Special Features							
Seagate OptiCache™ Technology	Yes	Yes	Yes	Yes	No	No	No
Seagate AcuTrac™ Technology	Yes	Yes	Yes	Yes	No	No	No

1 One gigabyte, or GB, equals one billion bytes and one terabyte, or TB, equals one trillion bytes when referring to drive capacity.
2 Seagate ships this drive in both 4K- and 512-byte sectors. SmartAlign technology is included on 4K sector drives. Both drives are functionally and physically equivalent.

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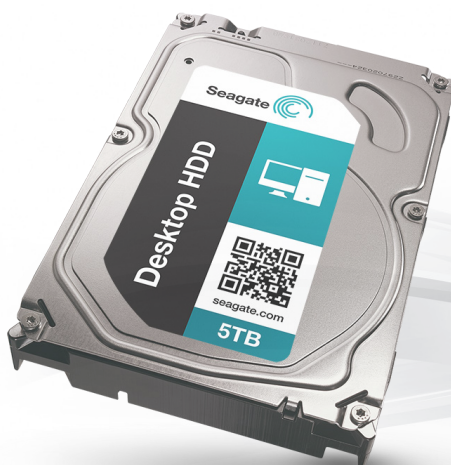
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Desktop HDD

Data Sheet

The Power of One

- Seagate brings over 30 years of trusted performance and reliability to the new Seagate® Desktop HDDs—now available in capacities up to 5TB.

- Double your capacity and drive down costs with up to 1.25TB-per-disk hard drive technology.

- SATA 6Gb/s interface optimizes burst performance

- Seagate AcuTrac™ servo technology delivers dependable performance.

- Free Seagate DiskWizard™ software allows you to install 3TB, 4TB and 5TB hard drives in Windows without UEFI BIOS.

Best-Fit Applications

- Desktop or all-in-one PCs

- Home servers

- Entry-level direct-attached storage devices (DAS)

Desktop HDD

Seagate ®

Specifications	5TB[1]	4TB[1]	3TB[1]	2TB[1]	1TB[1]	500GB[1]	320GB[1]	250GB[1]
Standard Model Numbers	ST5000DM000	ST4000DM000	ST3000DM001	ST2000DM001	ST1000DM003	ST500DM002[2]	ST320DM000[2]	ST250DM000[2]
Model Name	Desktop HDD	Desktop HDD	formerly Barracuda®	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda
Interface Options	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ
Performance								
Cache, Multisegmented (MB)	128	64	64	64	64	16	16	16
SATA Transfer Rates Supported (Gb/s)	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5
Seek Average, Read (ms)	<8.5	<8.5	<8.5	<8.5	<8.5	<11	<11	<11
Seek Average, Write (ms)	<9.5	<9.5	<9.5	<9.5	<9.5	<12	<12	<12
Average Data Rate, Read/Write (MB/s)	146	146	156	156	156	125	125	125
Max Sustained Data Rate, OD Read (MB/s)	180	180	210	210	210	144	144	144
Configuration/Organization								
Heads/Disks	8/4	8/4	6/3	6/3	2/1	2/1	2/1	1/1
Bytes per Sector	4096	4096	4096	4096	4096	4096 or 512[2]	4096 or 512[2]	4096 or 512[2]
Voltage								
Voltage Tolerance, Inc. Noise (5V)	±5%	±5%	±5%	±5%	±5%	±5%	±5%	±5%
Voltage Tolerance, Inc. Noise (12V)	±10%	±10%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%	+10%/−7.5%
Reliability/Data Integrity								
Contact Start/Stop Cycles	—	—	—	—	—	50,000	50,000	50,000
Load/Unload Cycles	300,000	300,000	300,000	300,000	300,000	—	—	—
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14
Workload Rate Limit (TB/year)	55	55	55	55	55	55	55	55
Power-On Hours	2400	2400	2400	2400	2400	2400	2400	2400
Limited Warranty (years)[3]	2	2	2	2	2	2	2	2
Power Management								
Startup Power (A)	2.0	2.0	2.5	2.5	2.0	2.0	2.0	2.0
Operating Mode, Typical (W)	7.5	7.5	8.0	8.0	5.90	6.19	6.19	6.19
Idle Average (W)	5.0	5.0	5.8	5.8	4.0	4.60	4.60	4.60
Standby Mode (W)	0.75	0.75	0.75	0.75	0.63	0.79	0.79	0.79
Sleep Mode (W)	0.75	0.75	0.75	0.75	0.63	0.79	0.79	0.79
Environmental								
Temperature								
Operating (ambient min °C)	0	0	0	0	0	0	0	0
Operating (drive case max °C)	60	60	60	60	60	60	60	60
Nonoperating (ambient °C)	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70	−40 to 70
Halogen Free	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS Compliance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Physical								
Height (mm/in)	26.11/1.028	26.11/1.028	26.11/1.028	26.11/1.028	20.17/0.7825	19.98/0.787	19.98/0.787	19.98/0.787
Width (mm/in)	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0
Depth (mm/in)	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787
Weight (g/lb)	610/1.345	610/1.345	626/1.38	626/1.38	400/0.88	415/0.92	415/0.92	415/0.92
Carton Unit Quantity	20	20	20	20	25	25	25	25
Cartons per Pallet	40	40	40	40	40	40	40	40
Cartons per Layer	8	8	8	8	8	8	8	8
Special Features								
Seagate AcuTrac™ Technology	Yes	Yes	Yes	Yes	Yes	No	No	No

1 One gigabyte, or GB, equals one billion bytes and one terabyte, or TB, equals one trillion bytes when referring to drive capacity.
2 Seagate ships this drive in both 4K- and 512-byte sectors. SmartAlign technology is included on 4K sector drives. Both drives are functionally and physically equivalent.
3 Extended warranty products available. Consult your distributor for details.

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